

Claims

[c1] What is claimed is:

1. An integrated redundancy architecture for providing BIST redundancy allocation to an embedded memory system, the architecture comprising:

- a BIST for identifying and transmitting row and column addresses from failed embedded memory;
- a first memory element for storing row addresses that have been assigned for repair by row redundancy;
- a second memory element for storing repaired column addresses that have been assigned for repair by column redundancy;
- a third memory element for accumulating the failed row and column addresses transmitted from said BIST and assigning them a particular weight value based on the number of like addresses already accumulated in said third memory element and their relative locations within the memory system; and

means for allocating redundancy resources of the memory system.

[c2] 2. An integrated redundancy architecture according to claim 1, wherein said first, second, and third memory el-

ements include the function of content addressable memory.

- [c3] 3. An integrated circuit comprising:
- an embedded memory system having a plurality of row and column redundancies;
 - a BIST for identifying row and column addresses of defective memory blocks in said embedded memory system;
 - a first memory element for storing said repaired row addresses that have been assigned for repair by row redundancy;
 - a second memory element for storing said repaired column addresses that have been assigned for repair by column redundancy;
 - a third memory element for accumulating said row and column addresses identified by said BIST and assigning them a particular weight value based on the number of like addresses already accumulated in said third memory element and their relative locations within the memory system; and
 - a finite state machine having a decision algorithm, said finite state machine in electrical communication with said first memory element, said second memory element, and said third memory element, said finite state machine allocating redundancy resources of said mem-

ory system according to said decision algorithm.

[c4] 4. An integrated circuit according to claim 3, wherein at least one of said first, second, and third memory elements include content addressable memory.

[c5] 5. A method of providing BIST redundancy allocation to an embedded memory system, comprising the steps of:
a) identifying failed row and column addresses of defective memory blocks in said embedded memory system;
b) accumulating said failed row and column addresses identified in step a) in a third memory element;
c) assigning failed row and column addresses accumulated in step b) a particular weight value based on the number of like addresses already accumulated and their relative locations within the memory system; and
d) transferring said failed row and column addresses associated with the most fails from said third memory element to first and second memory elements according to a decision algorithm.

[c6] 6. A method according to claim 5, wherein at least one of said first, second, and third memory elements include content addressable memory.